

Applicant : Short, et al.  
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Attorney's Docket No.: 564462001824  
D1370-14US  
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Amendment to the Claims:

Please amend the claims as follows:

Please cancel claims 4, 5, 7 to 10, 18 and 19, and 23 to 49, without prejudice or disclaimer.

This listing of claims will replace all prior versions, and listing, of claims in the application:

Listing of Claims:

Claim 1 (currently amended): A method for making a polypeptide having a phytase activity comprising:

providing a nucleic acid derived from a bacteria encoding a polypeptide having a phytase activity; and

expressing the nucleic acid in a yeast under conditions which allow expression of the enzyme in the yeast.

Claim 2 (currently amended): A method for making a polypeptide having a phytase activity comprising:

providing a non-natural or synthetically generated nucleic acid encoding a polypeptide having a phytase activity;

expressing the nucleic acid in a yeast under conditions which allow expression of the enzyme in the yeast.

Claim 3 (currently amended): The method of claim 1 or claim 2, wherein the nucleic acid has a sequence as set forth in SEQ ID NO:1, or wherein the polypeptide has an amino acid sequence as set forth in SEQ ID NO:2.

Claims 4 and 5 (canceled)

Claim 6 (original): The method of claim 3, further comprising isolating the expressed phytase.

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Claims 7 to 10 (canceled)

Claim 11 (currently amended): The method of claim 1 or claim 2 [[10]], wherein the yeast cell is a *Saccharomyces* sp., a *Schwanniomyces* sp., a *Pichia* sp. yeast cell, a *Hansenula* sp. yeast cell, a *Candida* yeast cell or a *Torulopsis* sp. yeast cell.

Claim 12 (original): The method of claim 11, wherein the yeast cell is a *Saccharomyces cerevisiae*, a *Schizosaccharomyces pombe*, a *Schwanniomyces occidentalis*, a *Pichia pastoris* or a *Hansenula polymorpha*.

Claim 13 (currently amended): The method of claim 1 [[10]], wherein the bacteria ~~bacterial cell~~ is a gram negative bacteria or a gram positive bacteria.

Claim 14 (original): The method of claim 13, wherein the gram negative bacteria is a *Pseudomonas* sp.

Claim 15 (original): The method of claim 13, wherein the gram negative bacteria is a *Escherichia coli* or a *Pseudomonas fluorescens*.

Claim 16 (original): The method of claim 13, wherein the gram positive bacteria is a *Streptomyces* sp., a *Lactobacillus* sp., a *Lactococcus* sp. or a *Bacillus* sp.

Claim 17 (original): The method of claim 16, wherein gram positive bacteria is a *Lactobacillus gasseri*, a *Lactococcus lactis*, a *Lactococcus cremoris* or a *Bacillus subtilis*.

Claims 18 and 19 (canceled)

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Claim 20 (currently amended): The method of claim 1 or claim 2, wherein the nucleic acid further comprises a cloning vehicle.

Claim 21 (original): The method of claim 20, wherein the cloning vehicle comprises an expression cassette, a vector, a plasmid, a phage, a phagemid, a cosmid, a fosmid, a bacteriophage or an artificial chromosome.

Claim 22 (original): The method of claim 1 or claim 2, wherein the polypeptide further comprises a signal peptide and the polypeptide is secreted by the cell.

Claim 23 to 49 (canceled)

Claim 50 (previously presented): The method of claim 2, wherein the nucleic acid has a sequence as set forth in SEQ ID NO:1 or SEQ ID NO:9, or wherein the polypeptide has an amino acid sequence as set forth in SEQ ID NO:2 or SEQ ID NO:10.

Claim 51 (new): A method for making a recombinant phytase comprising: (a) providing a phytase-encoding nucleic acid operatively linked to a promoter, wherein the nucleic acid comprises a sequence initially derived from a bacterium; and (b) expressing the nucleic acid in a yeast under conditions which allow expression of the recombinant phytase in the yeast.

Claim 52 (new): The method of claim 51, wherein the phytase-encoding nucleic acid nucleic acid has a sequence as set forth in SEQ ID NO:9, or encodes an amino acid sequence as set forth in SEQ ID NO:10, and the sequence initially derived from a bacterium comprises SEQ ID NO:1, or an amino acid sequence as set forth in SEQ ID NO:2.

Claim 53 (new): A method for making a recombinant phytase comprising: (a) providing a phytase-encoding nucleic acid operatively linked to a promoter, wherein phytase comprises a

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homologous signal sequence or comprises a heterologous signal sequence in place of the homologous signal sequence, and the nucleic acid comprises a sequence initially derived from a bacterium; and (b) expressing the nucleic acid in a yeast under conditions which allow expression of the recombinant phytase in the yeast.

Claim 54 (new): The method of claim 53, wherein the homologous signal sequence or the heterologous signal sequence signal peptide comprises a secretory signal peptide.

Claim 55 (new): A method for making a recombinant phytase comprising: (a) providing a phytase-encoding nucleic acid operatively linked to a promoter, wherein phytase comprises a homologous signal sequence or comprises a heterologous signal sequence in place of the homologous signal sequence, and further comprises a sequence imparting a desired characteristic, and the nucleic acid comprises a sequence initially derived from a bacterium; and (b) expressing the nucleic acid in a yeast under conditions which allow expression of the recombinant phytase in the yeast.

Claim 56 (new): The method of claim 55, wherein the homologous signal sequence or the heterologous signal sequence signal peptide comprises a secretory signal peptide.

Claim 57 (new): The method of claim 1 or claim 2, wherein the nucleic acid wherein the nucleic acid is contained in a vector.

Claim 58 (new): The method of claim 57, wherein the vector comprises at least a portion of a nucleotide sequence taken from a cloning vector, an expression vector, a bacterial vector, a plasmid, a viral particle, a phage, chromosomal DNA, nonchromosomal DNA, synthetic DNA, a vaccinia vector, an adenovirus vector, a fowl pox virus, a pseudorabies vector or a combination of nucleotide sequences thereof.

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Claim 59 (new): The method of claim 51, wherein the promoter is a constitutive yeast promoter or an inducible yeast promoter.

Claim 60 (new): The method of claim 59, wherein the constitutive yeast promoter comprises ADH or LEU2 or the inducible yeast promoter comprises GAL.

Claim 61 (new): The method of claim 51, wherein the yeast cell is a *Saccharomyces cerevisiae*, a *Schizosaccharomyces pombe*, a *Schwanniomyces occidentalis*, a *Pichia pastoris* or a *Hansenula polymorpha*.

Claim 62 (new): The method of claim 53, wherein the yeast cell is a *Saccharomyces cerevisiae*, a *Schizosaccharomyces pombe*, a *Schwanniomyces occidentalis*, a *Pichia pastoris* or a *Hansenula polymorpha*.

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